

**UNCLASSIFIED**

---

**AD 404 690**

*Reproduced  
by the*

**DEFENSE DOCUMENTATION CENTER**

**FOR**

**SCIENTIFIC AND TECHNICAL INFORMATION**

**CAMERON STATION, ALEXANDRIA, VIRGINIA**



---

**UNCLASSIFIED**

**NOTICE:** When government or other drawings, specifications or other data are used for any purpose other than in connection with a definitely related government procurement operation, the U. S. Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.

6334

TM(ADC)820/291/00A

CAT 371A  
404690  

# TECHNICAL MEMORANDUM

(TM Series)

DDC AVAILABILITY NOTICE

Qualified requesters may obtain  
copies of this report from DDC.

This document was produced by SDC in performance of contract AF 19(628)-1648,  
Air Defense Command Program, for Air Defense Command.

SAGE Unique-to-Site Environmental  
Data and Equipment Assignments  
Grand Forks ADS

by

D. M. McDaniel

22 March 1963

SYSTEM

DEVELOPMENT

CORPORATION

2500 COLORADO AVE.

SANTA MONICA

CALIFORNIA

The views, conclusions or recommendations expressed in this document do not necessarily reflect the official views or policies of agencies of the United States Government.

Permission to quote from this document or to reproduce it, wholly or in part, should be obtained in advance from the System Development Corporation.

Although this document contains no classified information it has not been cleared for open publication by the Department of Defense. Open publication, wholly or in part, is prohibited without the prior approval of the System Development Corporation.



MAY 24 1963

TISIA A

### INTRODUCTION

This volume of the TM(ADC)820 Series contains the official SAGE unique-to-site environmental data and equipment assignments which are to be used in adapting the Model 9 computer programs in Simplex Data Distribution Unit terminal assignments for the Grand Forks Air Defense Sector. Certain adaptation data such as facility locations, characteristics, and other related data which apply to all sectors, is presented in volumes 3 through 7 of this TM series. The reader is referred to Volume 0 of this series for a detailed list of contents of all volumes.

SAGE Unique-to-site Equipment Review (USER) Committee signatures appear on page 5 of this document, with initials indicating approval, concurrence or review, as appropriate.

ADCM 55-32 currently defines adaptation data as being of two categories: 1) ADC Controlled Data; and 2) Field Controlled Data. A portion of this document is ADC Controlled Data and therefore constitutes a reason for the ADC Foreword page and NORAD Preface page authorizing the use of this data. However, since this document also contains Field Controlled Data, e.g.: "Times-2" display data; Manual Input data; etc, it is noted here that the aforementioned military preface and foreword page do not in any way usurp the position of the Division and Sector Commanders as delegated in ADCM 55-32, but instead reflect recognition of data forwarded by those Commanders to SDC.

Discrepancies noticed in any part of this document by SDC on-site programming teams should be forwarded to the authors utilizing current established procedures. Revisions to this document will be published as data changes occur or when practical. Changes to previous data will be indicated by use of a ">" next to the data change.

### SERIES CONTENTS

VOLUME	0	Series Description
VOLUME	1	Adaptation I/O Limits and Drum Channel Requirements
VOLUME	2	Sector Environment Summaries
VOLUME	3	Sector and Region Positional Data
VOLUME	4	Radar Adaptation Data
VOLUME	5	Voice and Data-Link Communications Adaptation Data
VOLUME	6	Airbase and BOMARC Squadron Adaptation Data
VOLUME	7	ADA Site Adaptation Data
VOLUME	10	Unified Adaptation Guide for Region and Sector Data
VOLUMES	250 through 351	SAGE Unique-to-Site Environmental Data and Equipment Assignments

22 March 1963

2

TM(ADC)820/291/00A

LIST OF EFFECTIVE PAGES

This page is a reference of changes to this volume and contains a complete index of all effective pages.

PAGE NO	CHANGE LETTER	PUBLICATION DATE	PAGE NO	CHANGE LETTER	PUBLICATION DATE
1-2	A	22 Mar 63			
3 - 4	Basic	7 Nov 62			
5	Basic	7 Nov 62			
6	A	22 Mar 63			
7	Basic	7 Nov 62			
8	A	22 Mar 63			
9-12	Basic	7 Nov 62			
13-14	A	22 Mar 63			
15-17	Basic	7 Nov 62			

7 November 1962

5

TM(ADC)820/291/00

USER COMMITTEE SIGNATURES

	APPROVAL	CONCURRENCE	REVIEW
APASTO <i>Wm. H. Aderhold</i> <i>Lt. Col. USAF</i>	<i>WHA</i>		
SDC (DAS) <i>R. H. Marshall</i>		<i>Rm</i>	
WE/ADES <i>C. L. Lynde</i>			<i>C. L. Lynde</i>
IBM <i>D. H. Lee</i>			<i>D. H. Lee</i>

The SAGE Unique-to-Site Equipment Review (USER) Committee signatures appearing on this page only apply to the following sections:

- |             |   |
|-------------|---|
| Section 2.4 | IRI Drum channel assignments                  |
| Section 6.2 | Lateral-Tell input channel assignments        |
| Section 6.3 | Ground-to-ground data link output assignments |
| Section 6.4 | Ground-to-air data link output assignments    |
| Section 6.5 | Teletype output assignments                   |

All other sections of this document need not be reviewed by the USER committee. This page will only be reissued when changes to the above mentioned sections are made.

## INDEX PAGE

## 1.0 SECTOR POSITIONAL DATA

- 1.1 SECTOR PROGRAM BOUNDARIES
  - 1.1.1 MODE I BOUNDARY
  - 1.1.2 MODE II BOUNDARIES
- 1.2 MAJOR WORLD GEOREFS SURROUNDING X1 AREA
- 1.3 ADJACENT AUTOMATIC AND MANUAL SECTORS
- 1.4 LAND SFA LINES
- 1.5 AIR DEFENSE IDENTIFICATION ZONE
- 1.6 SECTOR MINIMUM ENROUTE ALTITUDE
- 1.7 TACAN TRANSMITTER NEAREST SECTOR CENTER
- 1.8 MAGNETIC DECLINATION LINES
- 1.9 X2 DISPLAY DATA

## 2.0 RADAR DATA

- 2.1 LONG RANGE RADARS - LRR - HF - ALRR
- 2.2 GAP FILLER RADARS
- 2.3 LOCATION OF POINT NOT WITHIN ANY HF SHADOW AREA
- 2.4 LRR DRUM CHANNEL ASSIGNMENTS

## 3.0 AIRBASE DATA

- 3.1 MANNED INTERCEPTOR AIR BASES AND SQUADRONS
- 3.2 SAC/MATS BASES

## 4.0 BOMARC DATA

- 4.1 BOMARC A BASES
- 4.2 BOMARC B BASES

## 5.0 ARMY AIR DEFENSE COMMAND POST (AADCP) DATA

## 6.0 COMMUNICATIONS DATA

- 6.1 TIME DIVISION DATA LINK RADIO SITES
- 6.2 LATERAL-TELL INPUT CHANNEL ASSIGNMENTS
- 6.3 GROUND TO GROUND DATA LINK OUTPUT ASSIGNMENTS
- 6.4 GROUND TO AIR DATA LINK OUTPUT ASSIGNMENTS
- 6.5 TELTYPE OUTPUT ASSIGNMENTS
- 6.6 LATERAL-TELL ROUTING TABLE

## 7.0 MANUAL INPUTS

7 NOVEMBER 1962

7

TN(ADC)820/291/00

## 1.0 SECTOR POSITIONAL DATA

SECTOR - GRAND FORKS

REGION - 29TH

AMP NO. 004

### 1.1 SECTOR PROGRAM BOUNDARIES

#### 1.1.1 MODE I BOUNDARY

REF	LATITUDE	LONGITUDE
01	055 00 00	095 09 00
02	049 00 00	095 09 00
03	043 30 00	094 00 00
04	043 30 00	094 30 00
05	043 30 00	098 00 00
06	043 30 00	100 30 00
07	043 30 00	101 30 00
08	046 30 00	100 00 00
09	055 00 00	100 00 00
10	OPEN TO NORTH	

#### 1.1.2 MODE II BOUNDARIES

MODE IIA - DULUTH		MODE IIB - MINOT			
REF	LATITUDE LONGITUDE	REF	LATITUDE LONGITUDE		
01	055 00 00 093 00 00	01	055 00 00 095 09 00		
02	043 35 00 091 10 00	02	049 00 00 095 09 00		
03	043 30 00 094 00 00	03	043 30 00 094 00 00		
04	043 30 00 094 30 00	04	043 30 00 094 30 00		
05	043 30 00 098 00 00	05	043 30 00 098 00 00		
06	043 30 00 100 30 00	06	043 30 00 100 30 00		
07	043 30 00 101 30 00	07	043 30 00 101 30 00		
08	046 30 00 100 00 00	08	043 45 00 105 00 00		
09	055 00 00 100 00 00	09	055 00 00 105 00 00		
10	OPEN TO NORTH		10	OPEN TO NORTH	

### 1.2 MAJOR WORLD GEOREFS SURROUNDING X1 AREA

SWITCH CODE	GEOREF	SWITCH CODE	GEOREF	SWITCH CODE	GEOREF
1	EJ	4	FJ	7	GJ
2	EK	5	FK	8	GK
3	EL	6	FL	9	GL



22 MARCH 1963

8

TM(ADC)820/291/00A

### 1.3 ADJACENT AUTOMATIC AND MANUAL SECTORS

AUTOMATIC SECTOR NAME	AUTO LTR. DSG.	SECTOR REF.NO. (EQ.ID.)	D/L TIED	AMP NO.	SWITCH CODE	MAN LTR. DSG.	MANUAL SECTOR NAME **
CHICAGO	K	10		007	0 *		
					1		
					2		
S.S.MARIE	V	6		014	3		
SIOUX CITY	L	4	YES	022	4		
DULUTH	U	5	YES	010	5	TF	BEAUSEJOUR
MINOT	P	6	YES	019	6		
GREAT FALLS	A	7		020	7		
					8		
					9		

\*SWITCH NO. 0 ON 10PB MODULES AND SWITCH NO. 10 ON 15PB MODULES

\*\*ONLY MDC'S WITH DC TTY OUTPUT ARE INDICATED

### 1.4 LAND SEA LINES - NONE

### 1.5 AIR DEFENSE IDENTIFICATION ZONE - ADIZ/CADIZ

REF		LATITUDE	LONGITUDE
01	ADIZ POINTS	049 00 00	113 00 00
02		049 00 00	105 00 00
03		049 00 00	100 00 00
04		051 00 00	096 00 00
05		051 00 00	092 00 00
06		051 00 00	090 00 00
01	NORTHERN CADIZ	054 00 00	092 00 00
02		054 00 00	096 00 00
03		052 00 00	102 00 00
04		052 00 00	105 00 00
01	SOUTHERN CADIZ	051 00 00	092 00 00
02		051 00 00	096 00 00
03		049 00 00	100 00 00
04		049 00 00	105 00 00

### 1.6 SECTOR MINIMUM ENROUTE ALTITUDE. 6000 FEET

### 1.7 TACAN TRANSMITTER NEAREST SECTOR CENTER

LATITUDE	LONGITUDE
047 57 00	097 24 00

22 MARCH 1961

13

TM(ADC)820/291/00A

## 3.0 AIRBASE DATA

## 3.1 MANNED INTERCEPTOR AIR BASES AND SQUADRONS

REF#	NAME	DSG	MODE-TYPE INDICATOR			MODE	SMCH CODE	SQUADRONS		AMP NO.
			I	IIA	IIB			UNIT	DSG	
01	GRAND FORKS ND	RDR	S	S	S	I	14	18 FIS	LL	048
02	MINOT ND	MIB	R	R	S	IIB	13	5 FIS	JN	100
03	DULUTH MINN	DLH	R	S	R	IIA	12	11 FIS	VN	032
								179 ANG	ML	032
04	FARGO ND	FAR	A	A	A	I	11	178 ANG	MP	037
05	SIOUX FALLS SD	FSD	A	A	A	I	10	175 ANG	PP	143
06	GLASGOW AFB MONT	GSG	R	R	R	OL	9			044
07	SIOUX CITY IOWA	SUX	R	R	R	OL	8			142
08	ELLSWORTH AFB SD	RCA	R	R	R	IIB	7			035
09	WINNIPEG MAN	WG	R	R	R	I	6			169
10	GIMLI MANITOBA CAN	GM	R	R	R	I	5			043
11	PORTAGE LA PRAIRIE	PG	R	R	R	I	4			130
12							3			
13							2			
14							1			
15							0			

\*SAME AS A/B CHANNEL NUMBER PLUS ONE

## 3.2 SAC/MATS BASES

	NAME	3 LTR DESIG	MODE*	AMP NO.
1	GRAND FORKS, ND	RDR	I	038
2	DULUTH, MINN	DLH	II	109
3	ELLSWORTH, SD	RCA	II	030
4	MINN-ST PAUL, MINN	MSP	II	063
5	MINOT AFB, ND	MIB	II	065

\*MODE IS DEFINED HERE AS INCLUDING A 50 MILE OVERLAP ZONE

22 MARCH 1963

14

TM(ADC)820/291/00A

#### 4.0 BOMARC DATA

##### 4.1 BOMARC A BASES - NONE

##### 4.2 BOMARC B BASES

REF	NAME	MODE	EQ.ID.	SQ. CHAN. NO.*	SQ. ID. NO.	2 LTR. DESIG.	AMP NO.	PARENT SECTOR	MODE II CONTROL
1	KINCHELOE	LTELL	NOT TIED	10		TM	014	SM	DU
2	DULUTH	IIA	24	3	1	HM	011	DU	GF
3									
4									

#### \*TRACK MODULE SWITCH CODE

##### 5.0 ARMY AIR DEFENSE COMMAND POST(AADCP) DATA

SWCH CODE*	NAME	OPTION	MODE	EQ.ID.	AMP NO.	PARENT SECTOR	MODE II CONTROL	OVERLAP COVERAGE
1	MINN-ST PAUL	AUTO	IIA	12	014	DU	GF	CH,SM,SC
2								
3								
4								
5								
6								
7								
8								
9	LINCOLN-OFFUTT	LTL	OL		010	SC	CH	GF,DU
10								

#### \*SAME AS AADCP NUMBER

##### 6.0 COMMUNICATIONS DATA

##### 6.1 TIME DIVISION DATA LINK RADIO SITES

REF.	IDENT	MODE	AMP NO.
01	P-29	I	149
02	P-17	I	137
03	M-99	I	089
04	P-18	I	138
05	SM-132	IIA	282
06	P-35	IIA	155
07	SDC-19	IIB	265
08	C-17	I	017
09	C-49	I	049
10	C-51	IIB	051
11	TM-201	IIB	183

22 March 1963

TM(ADC)820/291/00A

DISTRIBUTION LIST

PIR-A #4 WECO Group A - New York (5 and 1 vellum)  
WECO - Santa Monica (room 3311B)

PIR-A #5 IBM - Kingston (6 and 1 vellum)  
IBM - Santa Monica (room 3311A)

PIR-A #31 ADC-DIV SEC HQ  
AD4SY

PIR-A #36 ADC-DIV SEC HQ  
29th DIV HQ  
MIADS  
GRADS  
SCADS  
GFADS  
DUADS

PIR-A #48 HQ ESD  
ESSGL 416L SPO

PIR-A #41 ADC HQ and NORAD  
ADOAC-EE (Mr.R.W.Carvill)  
ADOOP-E

APASTO

AD8CP-T  
AD8CP-E

RCAF

Air Officer Commanding, ADC HQ (3)  
RCAF Station  
St.Hubert, Quebec, Canada

F/Lt G. R. Todd, RCAF  
Santa Monica, California

Chief of Air Staff AF HQ, ATTN: DROP/RDP 3  
Ottawa, Ontario, Canada

SYSTEM DEVELOPMENT CORPORATION

USG Sec 2 (3) 4345  
USG DAS (6) 4365  
FPB SSG System Data (2) 20157  
STB SSG Run Designer 4770  
PTG Control Unit - Phoenix  
FIB Group Head - Grandview  
FIB Team Heads - Malmstrom  
Sioux City  
Grand Forks  
Minot

FIB Team Head - Duluth

FIB HQ - 24191

UNCLASSIFIED

System Development Corporation,  
Santa Monica, California  
SAGE UNIQUE-TO-SITE ENVIRONMENTAL  
DATA AND EQUIPMENT ASSIGNMENTS  
GRAND FORKS ADS.  
Scientific rept., TM(ADC)-820/291/00A,  
by D. M. McDaniel, 22 March 1963,  
9p.  
(Contract AF 19(628)-1648,  
Air Defense Command Program, for Air  
Defense Command)

Unclassified report

DESCRIPTORS: Air Defense Command.

Identifiers: SAGE Model 9.

UNCLASSIFIED

---

Presents change pages for TM(ADC)-820/291/00,  
"Sage Unique-to-Site Environmental Data  
and Equipment Assignments Grand Forks  
ADS", by D. M. McDaniel, dated  
7 November 1962.

UNCLASSIFIED

UNCLASSIFIED